

DESCRIPTION OF FIFTEEN
NEW SOUTH AFRICAN FISHES,
WITH NOTES ON OTHER SPECIES.

BY

J. D. F. GILCHRIST, M.A., D.Sc., Ph.D.,

Government Biologist to the Colony of the Cape of Good Hope.

The following report on fishes procured during the course of the investigations of the "*Pieter Faure*" and in collections from shallower waters contains descriptions of three new genera and six new species from comparatively deep water, together with five new species and one new variety from shallow water.

As regards the deep water forms, there are added to the family of the Zeidae ("John Dories") two new genera and a new species of a genus already described from Cape waters, viz., *Cyttosoma* (Mar. Inv., Vol. III., p. 6) which may be, as explained below, the adult of Cuvier and Valenciennes' *Oreosoma*. A third new genus, of the family Stomiatiidæ, is also described (*Neostomias*). These were all found within a few miles of Cape Point. Five new species, mostly from the same locality, are also described (*Cottunculus spinosus*, *Læmonema globiceps*, *Bathypterois filiferus*, *B. ater* and *Halosaurus niger*).

Notes on other deep sea forms are given (*Antimora viola*, *Barathronus bicolor*, *Catætyx messieri*, *Porogadus miles*, *Chlorophthalmus gracilis*, *Scopelus coccoi*, *Ipnotis murrayi*, *Halosaurus affinis*, *Cyttosoma boops*).

Of the shallow water forms, new species are recorded in the family of the Scorpenidæ (2), Mugilidæ (1), Ophidiidæ (1), Pleuronectidæ (3), Clupeidæ (1); while notes are added on other shallow water species, viz., *Monocentris japonicus*, *Zeus japonicus*, *Synaptura cornuta*, *Hatophrys grandisquama*, which have recently been found and may now be added to the South African Marine Fauna.

The examination of a special collection of fish made in connection with the important practical question of the destruction of immature forms by certain methods of fishing has thrown some light on this subject. The following is a list of these fish:—(1) *Atherina breviceps* (adult), (2) *Spratelloides æstuarinus*, n. sp. (adult), (3) *Clupea sagax* (young), (4) *Engraulis holodon* (young), (5) *Chrysophrys holubi* (young and adult), (6) *Sciæna aquila* (young), (7) *Pagellus lithognathus* (young), (8) *Mugil algoensis*, n. sp. (adult).

The first four were popularly regarded as young forms of one species; of these the only young forms were 3 and 4, a young herring and a young anchovy respectively, the adults of which will be found in the deeper waters and may yet prove of commercial value. No. 5 is known as the "White Stumpnose" and thought to be the young of the ordinary White Stumpnose (*Chrysophrys globiceps*). It proves, however, to be a different species (*C. holubi*), of a much smaller size. Nos. 6 and 7 are undoubtedly young and immature forms of sea-fish. No. 8 is not, as is supposed, the immature form of the ordinary "harder" but belongs to a different and smaller species.

In Part I., Vol. I., of the "Marine Investigations" a list of the known species of the flat fishes of Cape Colony was given. These were then six in number. With the addition of one species recorded from Natal and another (*Synaptura punctatissima*, Peters) recorded by Steindachner from "Algsa Bay" (probably a misprint for Algoa Bay, at Port Elizabeth) the total number of known South African Flat Fishes was eight. The addition of another 20 species necessitates the enlargement of this key (*vide* p. 163).

The following is a classified list of all the species here dealt with. New species and genera are indicated by darker type:—

	Order.	Family.	Page.
1. <i>Polyprion americanum</i>	Acanthopterygii	Serranidae	.. 145
2. <i>Tetraroge monacanthus</i>	"	Scorpaenidae	.. 145
3. " <i>gymnoderma</i>	"	"	.. 147
4. <i>Monocentris japonicus</i>	"	Berycidae	.. 148
5. <i>Cottunculus spinosus</i>	"	Cottidae	.. 149
6. " <i>macrocephalus</i>	"	"	.. 149
7. <i>Cyttosoma boops</i>	"	Zeidae	.. 150
8. " <i>verrucosum</i>	"	"	.. 151
9. <i>Pseudocyttus maculatus</i>	"	"	.. 153
10. <i>Neocyttus rhomboidalis</i>	"	"	.. 153
11. <i>Zeus japonicus</i>	"	"	.. 154
12. " <i>capensis</i>	"	"	.. 154
13. <i>Laemonema globiceps</i>	Anacanthini	Gadidae	.. 157
14. <i>Berathronus bicolor</i>	"	Opludidae	.. 158
15. <i>Cataetyx messieri</i>	"	"	.. 159
16. <i>Porogadus miles</i>	"	"	.. 159

	Order.	Family.	Page.
17. Ammodytes siculus	Anacanthini	Ammodytidae	.. 159
18. Solea cleverleyi	"	Fleuronectidae	.. 160
19. Synaptura regani	"	"	.. 161
20. " cornuta, juv.	"	"	.. 161
21. Platophrys grandisquama	"	"	.. 161
22. Cynoglossus acaudatus	"	"	.. 162
23. Plagusia marmorata, var africana	"	"	.. 163
24. Chlorophthalmus gracilis	Physostomi	Scopelidae	.. 165
25. Scopelus coccoi	"	"	.. 165
26. Ipnops murrayi	"	"	.. 166
27. Bathypterois filiferus	"	"	.. 166
28. " ater	"	"	.. 167
29. Neostomias filiferum	"	Stomiidae	.. 168
30. Halosaurus niger	"	Halosauridae	.. 170
31. " affinis	"	"	.. 171
32. " sp.	"	"	.. 171

Fam. SERRANIDAE.

Polyprion americanum.

This fish is not uncommon in Cape waters and is known to fishermen as the "Bafaro." Only one has been procured by the trawl, and it showed an interesting anomaly in having six distinct branchial rays in the ventral fin, the spine having apparently been converted into a branched ray. It was procured during trawling operations at Mossel Bay, 4th July, 1902, from a depth of 30-35 fathoms.

Fam. SCORPAENIDAE.

Tetraroge monacanthus, n. sp.

(Plate XXXVII.)

The fishes which are here described under this name and which fall under the genus *Tetraroge* as defined by Günther (Cat. II., p. 132) would almost necessitate a new genus if the further sub-division of this genus, suggested by Day, were accepted. It is one of the forms which connect the Cape Fauna with that of the Indian Ocean and East Indies, and may be, as Mr. Regan, who has examined the specimen, suggests, *T. dermacanthus* of Bleeker, whose specimen was from Ceram. In as much, however, as it differs from the description of this species in having only one anal spine (not particularly small) and has barbels though not well developed it is here described as a new species.

Br. 6. D. XIII 10. A. 18, V. 15.

Length of head $2\frac{2}{3}$, pectoral $3\frac{1}{2}$, caudal $4\frac{1}{2}$, height of body 3 times in length of body. Eye rather small, 5 times in length of head, equals interorbital space and $1\frac{1}{2}$ in its distance from end of snout.

Two bony ridges run along the snout and over the interorbital region to meet the dorsal fin. The superciliary ridges are about equally prominent so that the interorbital space is crossed by four longitudinal ridges. Two bony ridges run backwards from the orbit nearly to under the 4th spine, one a continuation of the superciliary ridge and the other parallel to it but at a lower level. The preorbital is provided with two blunt spines, the second of which is larger than the first, and is about equal to the diameter of the eye. The preoperculum is provided with four blunt spines, the first and lowest being very small and the posterior being about equal to the larger of the two preorbital spines. There are no prominent spines on the operculum. There is under each jaw a small inconspicuous dermal appendage.

There are villiform teeth on jaws and vomer but not on palatines.

The dorsal fin commences over the centre of the eye. It consists of 13 spines, the first three of which are longer than the succeeding, and are placed nearer to each other than to those succeeding. Of the ten soft rays the largest is a little more than the greatest length of the first three spines and all are longer than the other spines. The pectoral reaches to the anus, the ventral about half way.

The scales are peculiar and have a resemblance to the placoid type. On the surface they appear as papillæ which are rough to the touch. If a piece of skin be examined microscopically from below a number of circular scales with the usual lines of growth are seen; these are fairly large, being greater in diameter than the spaces between them. On each of these is a relatively strong spine whose point is turned backwards. The number of tube-like elements of the lateral line is about 10.

The colour in formalin is dark brown speckled with blacker spots on body and fins. There is a dark band on the tail.

Five specimens were got in all, two (the largest and type 47 mm. in total length) from the coast of Natal (False Bluff, N.E. $4\frac{3}{4}$ miles). They were procured by shrimp trawl, depth

20 fathoms, bottom fine sand. Two were also procured from off Umhlanga River Mouth, $2\frac{1}{2}$ miles, by shrimp trawl, depth 22-26 fathoms, bottom fine sand.

Tetraroge gymnoderma, n. sp.

(Plate XXXVII.)

A second species of *Tetraroge* is readily distinguished from the preceding by its entire absence of scales.

D. XV 5-6. A. III 4. VI 3. Ll. 8.

Head $2\frac{3}{4}$ in body, equals length of pectoral which is slightly longer than caudal; depth of body little over 3 times in its length.

Diameter of eye nearly 4 times in head, equals the interorbital space and also its distance from the snout.

Bony ridges on snout and interorbital space not marked. Preorbital has a sharp spine with a smaller one at its base; preopercular with 4 spines the last of which is the longest. Two blunt spines on upper part of operculum. No dermal appendage to lower jaw.

Villiform teeth on jaws and vomer, none on palatine.

The dorsal fin commences over the posterior margin of the eye. The first spine is less than half the length of the second and third which are the longest and are not separated from the succeeding by a larger space than that between each other. The last spine is longer than those immediately in front and nearly equals the length of the succeeding rays. The pectoral reaches to the 2nd spine of the anal and the ventral to the anus.

No scales could be discerned in a piece of skin examined microscopically. There are 8 tubes of the lateral line.

The colour in spirit is a dark brown over the head and anterior part of body, a brown band over the body at the beginning of the anal and one across the root of the tail. In most specimens these become, however, bleached out. The following colour notes were taken at time of capture: "Brownish brick red in large patches, chiefly behind head and under anterior part of dorsal, in the middle of the body and on the caudal region; in some specimens the colour appears in dots in these regions. All the fins are speckled with brown dots."

Numerous specimens of this species were found. They were procured as follows :—

Locality.	Date.	How Procured.	Depth. fathoms	Ref. No.
Cape St. Blaize, N. by E., dist. $8\frac{1}{2}$ miles.	22nd Oct., 1900.	Large dredge.	39	10,474
Great Fish Point Light-House, W. $\frac{1}{2}$ W., dist. $2\frac{1}{2}$ miles.	30th Aug., 1901	Shrimp trawl.	30	13,636
Bird Island Lighthouse, N. $\frac{1}{2}$ W., dist. $8\frac{1}{2}$ miles.	5th Oct., 1901.	..	57-59	14,038
False Island, N. by W. $\frac{1}{4}$ W., dist. 7 miles.	21st Sept., 1901.	..	49	13,894
Rockland Point, N.W. $\frac{1}{4}$ N., dist. $2\frac{1}{2}$ miles.	8th June, 1900.	Large dredge.	23	5,064
Seal Island, S. by W. $\frac{1}{2}$ W., dist. 2 miles.	25th Nov., 1902.	Dredge.	9	16,100
Bakoven Rock, N.W. by W., dist. 2 miles.	11th Nov., 1902.	..	24	15,881
Swart Klip, N.E., dist. 1 mile.	24th Aug., 1903.	..	9	17,482
Fish Hoek Bay	24th Dec., 1902.	Shrimp trawl.	5	16,378

Fam. BERYCIDAE.

Monocentris japonicus.

Three specimens of this fish have been found in South African waters within the last few years in the course of the work of the "*Pieter Faure.*" as follows :—

Locality.	Date.	How Procured.	Depth. fathoms	Ref. No.
Mossel Bay	24th June, 1898.	Shrimp trawl.	20	88
Mossel Bay	6th Feb., 1903.	Large trawl.	30-36	16,446
Fish Point Lighthouse, N.W. by W., dist. $4\frac{1}{2}$ miles.	17th April, 1905.	..	35	18,700

There can be little doubt that these specimens are specifically identical with the species found in Japanese waters. Mr. Boulenger, to whom one was sent, was of this opinion, and I have carefully compared all the specimens with some from Japan, which Mr. Kishinouye was good enough to forward for this purpose.

Fam. COTTIDAE.

Cottunculus spinosus, n. sp.

(Plate XXXVIII.)

D. IV 10. A. 10. V. 3. P. 16.

Length of head equals its breadth and is $2\frac{3}{4}$ in length of body without caudal, which is about a fourth of the length of the body and equal its depth; diameter of eye equals the length of the snout and is $2\frac{1}{2}$ in the depth of the body. Length of largest 45 mm.

There are small teeth in the upper and lower jaw arranged in rows of three anteriorly, but in one row posteriorly. There are no teeth in the vomer.

The head has a series of spines or sharp tubercles arranged with perfect bilateral symmetry with reference to the body. The two most prominent and largest are situated over the occipital region and are about $\frac{2}{3}$ the diameter of the eye in length. There are a series of five running downwards and forwards from each of these on each side of the head to a single one situated between the eyes. There are also two (one very small) situated between these two largest ones and the opercular opening; also a group of four similar, but smaller on the anterior margin of the preoperculum—one on the snout and on the preorbitals.

The dorsal commences over the pectoral. The spines, which seem to be four in number, are covered by the loose skin, the tips only showing externally as dark spots. The anal falls in the same vertical as the dorsal. The ventrals reach the vent, the distance of which from the snout is $2\frac{1}{4}$ in the length of the body.

Locality: A single specimen was procured, Cape Point bearing N. 70° E., distant 40 miles; depth, about 800 fathoms.

Cottunculus macrocephalus, Gilchr.

(Plate XXXIX.)

Subsequently to the finding of specimens of a *Cottunculus* described (Marine Investigations, Vol. III., p. 7) as a new species (*C. macrocephalus*) additional specimens were procured of a much larger size (the largest being 290 mm. as against

45 mm. of the type) and differed from the first procured in certain respects which may quite well be due to their being adult or older form of the above-named species. The head and eye are relatively smaller in the large forms, while the fin formula is apparently different, being D. VII 18. A. 13. P. 21. V. I 3.

In these fishes, however, the fin formula can only be accurately ascertained by dissection and in the case of small forms it is difficult to ensure that some of the spines or rays are not overlooked.

In the larger forms villiform teeth are apparent in the jaws, but none on the vomer or palatine.

The distance of the ventrals from the snout is nearer $\frac{1}{4}$ than $\frac{1}{3}$ of the length of the body.

Locality.	Date.	How Procured.	Depth. fathoms	Ref. No.
Cape Point, N.E. $\frac{3}{4}$ N., dist. 39 miles.	17th Sept., 1903.	Shrimp trawl.	310-560	17,992
Cape Point, N. 41° E., dist. 38 miles.	10th Sept., 1903.	"	" 315-400	17,992A. 17,944

Fam. CYTTIDAE.

Cyttosoma boops, Gilchr.

A smaller specimen than the type, obtained Cape Point Lighthouse bearing N.E. $\frac{3}{4}$ E., distant 29 miles, by shrimp trawl on the 11th June, 1903, depth 470 fathoms, undoubtedly belongs to the above-named species and throws some interesting light on the identification of the adult form. In describing this species (Mar. In. Vol. III., p.7) the presence of one or two large scales was noted without particular importance being attached to them. Only one was distinctly seen and is represented in the figure (*vide* Plate XXIII., Vol. III.)

In this smaller form there are distinctly two below the anterior part of the dorsal fin and, in addition, others of a similar character along the side and below the abdominal region, and there are arranged in a manner closely approximating to that shown in Cuvier and Valenciennes's figure of *Oreosoma atlanticum*.

This comparison is suggested by Mr. Boulenger's note (C.R. Ac. Sci., Paris, 1903) on the following species which was found about the same time and place, and which he suggests may belong to the genus *Oreosoma*. In all probability *Cyttosoma boops*, *C. verrucosum* (see below) and *Oreosoma atlanticum* should be included in the same genus, the last being an immature form of the first. To keep the question open, however, till confirmatory specimens are procured, I still include the forms found by the Cape Government steamer under the genus *Cyttosoma* with the following amended definitions: Body compressed, elevate, enlarged scales or tubercles on the sides and the ventral region of the body. First dorsal much shorter than second, anal with 3 spines and many rays which are similar to those of the dorsal. Ventrals are well separated and consist of a strong spine and 6 or 7 soft rays. Branchiostegals 7.

Cyttosoma verrucosum, n. sp.

(Plate XL.)

Oreosoma sp. Blgr., C.R. Ac. Sci. (Paris), 1903.

? *Oreosoma*, C. and V., IV, p. 515, pl. 99.

Br. VII. D. VI 31. A. III 29. V. 16. Ll. 95.

Body rhomboidal, greatest depth $1\frac{1}{2}$ in length. Head large, $\frac{2}{5}$ of length of body. Eye $2\frac{1}{5}$ in head or $3\frac{1}{2}$ in height of body. Caudal peduncle slender; its depth equals the interorbital space, which is about $2\frac{1}{2}$ in diameter of eye. Premaxillary protrusible and can be received into a horse shoe shaped fontanelle which extends backwards to between centre of eyes. The maxillary extends to the anterior fourth of the eye. Gills $3\frac{1}{2}$, no opening behind last. Gill rakers longer than lamellæ, 20 on the lower limb of first arch. Pseudobranchiæ well developed.

Unlike its nearest generic relation *Cyttus*, this fish is covered with scales which though small are stout and well developed, having a blunt conical elevation in their centre which renders the body rough to the touch. They are somewhat similar to the rough tubercular scales on certain regions of the body of *C. boops*. The most marked feature, however, are two rows of enlarged scales roughly parallel to each other on the side of the body, one immediately below the pectoral fin and another immediately above the ventral. Great variations occur in

the number, size and shape of these scales in different specimens, but they always are disposed more or less in two rows. In one specimen they were specially clearly marked (*vide* plate XL.), about 12 being above and 11 below. No trace whatever was found of any enlargement of scales in the region below the 1st dorsal as in *C. boops*. Two or three rows of enlarged scales, smaller however than the preceding, occur on the ventral aspect between the ventrals and anal. The scales along the base of the dorsal and anal are pectinate and slightly larger than those of body. The lateral line has a sharp curve in its anterior portion, its highest point falling just in front of the first dorsal spine; its posterior portion forms a slight curve becoming straight in the tail region.

The spines of the dorsal are short and stout. The first is very small, the second being the longest. They are continuous with the long second dorsal, the rays of which gradually increase in size from about the length of the 6th spine in front to about 5 times this length behind. The spines of the anal are stout like those of the dorsal, the first, however, here being the longest; they are continuous with a long, soft portion which is very similar to the soft portion of the dorsal. The rays in both fins are simple. The pectoral fin is short, rounded, and composed of 20 simple rays. The ventrals are well separated (*vide* plate XL.) and composed of one strong spine and six soft branched rays.

The caudal is short, somewhat rounded, and composed mostly of branched rays, those at the side unbranched and sometimes one or two unbranched between the branched rays.

Many specimens of this fish were found about 30 miles off Cape Point in about 600 fathoms.

Pseudocyttus, n.g.

Body compressed, elevate rhomboidal, upper profile straight. Eyes moderate in size. Scales small deciduous cycloid replaced by tubercles on dorsal and ventral regions as in *Cyttosoma*, but there are no enlarged scales on the sides of body as in that genus. The first dorsal has six spines and the anal has two. The ventrals have one spine and five rays, and are well separated. There are a few feeble teeth on the jaws, but the palate is toothless. Branchiostegals 6, gills $3\frac{1}{2}$, no opening behind the last. Pseudobranchiæ well developed. This new genus, like the succeeding, is closely related to *Cyttosoma*.

Pseudocyttus maculatus, n.sp.

(Plate XLI.)

Br. VI. D. VI 34. V. 15. P. 20. Ll. 100 (circa).

Upper jaw moderately protractile. Distance between tip of snout and eye being $\frac{2}{3}$ diameter of eye, which is contained $7\frac{1}{2}$ times in the length (185 mm.) and $4\frac{1}{3}$ times in depth of body. Length of head three times in length of body. Interorbital space $1\frac{1}{5}$ in diameter of eye. The maxillary extends to below the front margin of the eye.

Colour : Grey with large dark spots.

Only one specimen found off Cape Point (N. 41° E., 38 miles) by shrimp trawl, at a depth of 315-400 fathoms, 16th September, 1903. (Reference number, 17,938.)

Neocyttus, n.g.

Body compressed and elevate. Eyes large. Scales small ctenoid and not deciduous. The first dorsal has seven spines, the second of which is stronger and longer than the others. There are three anal spines, the first of which is thick and long like the second dorsal. Ventrals I 6, close together. Teeth on jaws and vomer. Branchiostegals 7.

Neocyttus rhomboidalis. n.sp.

(Plate XLII.)

Br. VII. D. VII, 33-35. A. III 30-33. V. I 6. Ll. 104 ?

Upper jaw moderately protractile. The distance of the snout from the eye when mouth is closed is a little less than half the diameter of the eye. The greatest depth of the body is about $3\frac{1}{2}$ times the diameter of the eye and is contained $1\frac{1}{2}$ times in the length of the body (140 mm.). Length of head is $2\frac{1}{2}$ times in the length of body. Interorbital space $1\frac{1}{4}$ in diameter of eye. The mouth is not so protractile as that of *Cyttosoma*, the superior limb of the pre-maxillary being $1\frac{1}{4}$ in the interocular width and much shorter than the maxillary.

The scales of the body are small but stout and are all ctenoid. They are all about the same size. Near the base of the dorsal and anal they are slightly smaller, but a single row of larger scales occurs immediately at the base about the same size as

those of the middle region of the body, with free edges not running into the minute ctenoid scales, which cover the rays of the dorsal and anal to over half their length. Scales similar to the last mentioned occur also in the rays of the pectoral.

On the head region there are a series of bony ridges, viz., on the operculum where they assume a fan shape, and along the border of the preoperculum. The interoperculum has also a few striæ, as have also the maxillary, mandibular, preorbital and supraorbital.

This description is from the largest specimen (170 mm., including caudal). The smaller specimen (about $\frac{2}{3}$ of this length), besides having larger eyes, showed a marked difference in the greater length of the large spines of the dorsal, anal and ventral. In the larger these were respectively 24, 19 and 26 mm., being 22, 18 and 24 in a specimen 126 mm.

Two were procured in the same haul as *Pseudocyttus maculatus*. (Reference numbers, 17,947, 17,939.)

Zeus japonicus, C.V.

Three specimens of this fish have recently been found in South African waters. The largest (300 mm.) was procured by large trawl from the East Coast (Nanquas Peak, N.E. by N. $\frac{1}{4}$ N., $6\frac{1}{2}$ miles), from a depth of 47 fathoms, bottom mud.

One, 170 mm. in length, from Simonstown, forwarded by a fisherman, and one only an inch in length, procured off the Tugela River (N. by W. $\frac{3}{4}$ W., $15\frac{1}{2}$ miles) by shrimp trawl, from a depth of 40 fathoms, January 1st, 1901. (Reference No. 11,307.)

There can be little doubt as to the identification of these specimens as they were found to agree with the description and figure of *Zeus japonicus*, and Mr. Boulenger, who has been good enough to compare a specimen, finds it shows complete agreement with Japanese specimens of *Z. japonicus*.

Zeus capensis, C.V.

The list of the members of the family of the Zeidae of the Cape seas may be completed by a note on the single species previously recorded from South Africa (*Zeus Capensis*, C. and V., x p. 23). This species is described as differing from the European *Z. faber* only in (1) having the number of plates at the base of the soft dorsal smaller and more numerous (eleven), and (2) especially in their spines being

not forked but single, small and inclined backwards; further (3), the series of plates between the ventral and anal are not provided with points. *Zeus Capensis* is also described as having one ray less in the soft anal.

Smit (Scandinavian Fishes, p. 308) refers also to the difference between *Zeus faber* and *Zeus capensis* as "extremely slight," and adds: "The latter may perhaps deserve a distinct specific name as the form marked by an increase in the number of spinous plates." The following table drawn up on an examination of eleven specimens of *Z. capensis* varying from adults to quite small forms will show more clearly to what extent the two species differ:—

	Total length in Millimeters.	Number of plates at base of—				Spines single (S) or double (D).	Spines and rays of Dorsal.	Spines and rays of Anal.	Black spots and lat. line.	Ventral plates with or without points.
		Dorsal.		Anal.						
		right.	left.	right.	left.					
A	427	11	11	10	10	S	x 24	iv 20	above.	without.
B	400	11	11	10	10	S	x 24	iv 20	..	..
C	400	11	12	11	11	S	x 23	iv 21	..	.. or very faint.
D	398	11	12	11	11	S	x 23	iv 21	..	without.
E	235	10	10	10	9 ¹	S	x 23	iii 21	..	with.
F	212	11	11	11	11	D ²	x 23	iv 21	on.	..
G	125	11	10	11	11	D ³	ix 24	iv 21	above.	..
H	115	10	11	11	10	D ⁴	x 23	iii 21	..	..
I	115	11	11	11	11	D	x 23	iv 21	..	..
J	115	11	10	11	11	D	ix 24	iv 21	..	..
K	87	9	11	9	9	D	x 23	iv 21	..	..
<i>Z. faber</i>		7-10		7-9		D	x 22	iv 21	below.	with.

(1) One broken included.

(2) Only rudiment of accessory spine slightly marked on dorsal plates, distinct on anal plates of left side.

(3) Rudiment only of accessory spine forming a ledge on dorsal and anal plates of both sides.

(4) Very distinct accessory spine.

Localities: A, D, E, Simon's Bay; B, C, False Bay; F—K, Buffels Bay.

From an examination of this table it will be seen that, on the whole, there is in *Z. capensis* a larger number of spinous plates at the base of both the soft dorsal and anal; the forked spines, said to be characteristic of *Z. faber*, are found only in the smaller forms, indistinctly in some but very distinct in the smallest. The difference between the South African and European species, said to be indicated by the presence or

absence of points on the ventral plates, is also not constant as will be seen from the last column, where it is again to be noted that the smallest form approaches nearest to the condition of *Z. faber*.

One difference is found to be constant in all the species examined, namely, the position of the black spot on the side. In *Z. faber* it is in the middle of the body, about half way up the side and nearly equidistant from the posterior edge of the operculum and the lateral line, while in *Z. capensis* it is about $\frac{3}{4}$ up the side and just above or on the lateral line.

On the whole the difference between the two species seem to be sufficiently well-marked to separate them as distinct varieties at least and the closer resemblance of the young forms of *Z. capensis* to the adult of *Z. faber* seems to indicate that the latter is the older form phylogenetically. This resemblance is in the presence of points on the ventral plates and forked or double spines on those at the base of the dorsal and anal. An examination of a considerable number (40) of small specimens, varying in total length from 18 to 50 mm., showed that this feature is constant in the young forms, the spines being as well developed in these as in the adults of *Z. faber*. They were procured as follows:—

Refer- ence No.	Locality.	No.	Size, includ- ing caudal, in mm.
15,390A.	Cape Point Lighthouse, N.E. by E., $6\frac{3}{4}$ miles ..	1	17
10,315	Walker Point, E. by S., 5 miles	15	26-30
10,417	Gericke Point, N. 57° E., 8 miles	10	36-42
8,040	Cape Infanta, N.E. by N., 19 miles	1	43
2,880	Vondeling Island, N. $\frac{1}{4}$ W., 9 miles	1	22
242A.	23 miles S.W. from Cape St. Blaize	2	28-38
10,423	Gericke Point, N.E. $\frac{3}{4}$ E., $13\frac{1}{2}$ miles	10	23-50

In all of these small specimens the large black spot was as in the adult, viz., on or above lateral line though in a few there were, in addition, less conspicuous spots elsewhere, usually alongside it, sometimes in the centre of the body, as in *Z. faber*.

Fam. GADIDAE.

Læmonema globiceps, n.sp.

(Plate XLIII.)

Body compressed, tapering from head region with a straight dorsal and ventral edge to the somewhat slender tail. Its height is contained five times in its length. The head is globular, slightly broader than deep, and is contained a little over $4\frac{3}{5}$ times in the length of body; the mucous cavities of the head and thin transparent skin give it a swollen appearance. The eye is about $3\frac{1}{2}$ times in the head and $1\frac{1}{2}$ times in the interorbital space, which is flat and wider than in any other species. The maxillary reaches to the posterior third of the eye. There is no barbel. Teeth villiform, in a narrow band (1 row in lower, 2 to 3 in upper) in both jaws; none on vomer or palatines.

The first dorsal commences over the base of the pectoral, and consists of five rays, the first of which is very long ($3\frac{3}{5}$ in length of body). The second dorsal, of about 70 rays, commences at a distance behind the first about equal to the length of the base of the latter. The anal of 66 rays commences under the 6th ray of the 2nd dorsal. Anal and dorsal end near the caudal, the free part of which is about double its depth.

Ventrals apparently consist of "a single long ray bifid at its end" (*vide* generic definition), the inner and longer branch reaching to the 3rd or 4th ray of the anal, the shorter to the anus. If dissected out, however, and examined more minutely, it is found that there are three rays, one very short on the inner side, the second long, and the third about half its length.

The scales are moderately small, feeble and deciduous. There are five between the first dorsal and the lateral line and 16 (?) between this and the ventral aspect. The lateral line consists of about 20 pierced scales separated from each other by a distance about equal to half the diameter of the eye. The lateral line has a marked curve till it reaches the middle of the body from whence it continues backwards in a straight line. The number of rows of scales between the head and base of the caudal is about 90.

I have placed this fish under the genus *Læmonema* provisionally. It differs from the description of the type of that genus in the ventrals which, though apparently "reduced to a single long ray, bifid at its end," really consists of three rays.

Specimens of this fish were procured by shrimp trawl at the following localities :—

Locality.	Date.	Number Procured.	Depth. fathoms.	Ref. No.
Cape Point, N. 49° E., dist. 38 miles.	Sept. 11th, 1903.	1	475-550	17,864
Cape Point, E. $\frac{3}{4}$ N., dist. 38 miles.	July 29th, 1903.	1	630	17,172
Cape Point, N.E. by E. $\frac{1}{4}$ E., dist. 38 $\frac{1}{2}$ miles. (2 specimens procured one of which is a female 180 mm. in length and with well-developed ova.)	June 23rd, 1903.	2	755	16,711
Cape Point, E. $\frac{1}{2}$ N., dist. 34 $\frac{1}{2}$ miles.	Aug. 20th, 1903.	5	500-550	17,399 A—C.
Cape Point, N. 81° E., dist. 32 $\frac{1}{2}$ miles.	Sept. 9th, 1903.	2	460-630	17,688
Cape Point, N. 81° E., dist. 32 miles.	Aug. 28th, 1903.	1	460	17,619
Cape Point, E. $\frac{1}{2}$ N., dist. 34 $\frac{1}{2}$ miles.	Aug. 20th, 1903.	1	500-550	17,392
Cape Point, E.N.E., dist. 36 $\frac{1}{2}$ miles.	Sept. 10th, 1903.	2	660	17,791
Cape Point, E. by N., dist. 35 miles.	Sept. 9th, 1903.	2	500	17,738
Cape Point, E. $\frac{1}{2}$ N., dist. 36 miles.	Aug. 28th, 1903.	3	700-800	17,653
Cape Point, E. by N. $\frac{3}{4}$ N., dist. 34 miles.	Sept. 10th, 1903.	8	480-600	17,761
Cape Point Lighthouse, N.E. $\frac{3}{4}$ E., dist. 36 miles.	June 11th, 1903.	1	600	16,657

Barathronus bicolor, Goode and Bean.

A specimen of this fish was procured by shrimp trawl off Cape Point (E.N.E., 36 $\frac{1}{2}$ miles), from a depth of 660 fathoms. Reference No. 17,090. It corresponds closely to the above-named species, the type of which was procured off Guadaloupe from a depth of 769 fathoms.

It is slightly over 120 mm. in length, which was the length of the type, and is a female with well-developed ova, each about 1.2 mm. in diameter. The general colour is white with a few small dark patches on the body and dark streaks as in the type. The eye is not visible through the skin. The vomer has three teeth on each side, the two outer of which are longer than the inner.

Catetyx messieri, Günth.

Three young specimens (about 40 mm. long) of this large deep sea viviparous Gadoid were procured by dredge off Umhlangakulu River (N.W. by N. $7\frac{1}{2}$ miles) from a depth of 50 fathoms. Reference No. 12,368.

The adult male and female I have already mentioned, and described the eggs and young (Marine Investigations, Vol. III., pp. 141-143).

The young were characterised by a much inflated abdominal region, which ventrally was infolded to form a sort of groove in which the ventrals lay.

Porogadus miles, Goode and Bean.

One specimen procured by shrimp trawl off Cape Point (E $\frac{1}{2}$ N., 36 miles), from a depth of 700-800 fathoms (Reference No. 17,652), seems to be the above species. The pectoral described as imperfect in the type is complete in this specimen, and is nearly one half the length of the head (1.7 in head); the ventral, which consists of two filaments, free from each other, is scarcely the height of the body, being equal to the distance between the lateral line and the ventral side of the body. Distance of origin of ventral to vent slightly greater than length of head.

Total length, 255 mm.

The type (153 mm. in length) is from Albatross Station, 2230, North latitude $38^{\circ} 27'$, West longitude $73^{\circ} 02'$, at a depth of 1,168 fathoms.

Fam. AMMODYTIDAE.

Ammodytes siculus, Günth. (?)

Three specimens of this fish have been procured, one found in the trawl of the Government vessel in False Bay, 27th September, 1903; one procured by fishermen, Kalk Bay, and one, which was greatly damaged, from the stomach of a "snoek" (*Thrysites atum*), caught in False Bay, 27th July, 1904. Mr. Boulenger informs me that there is a similar specimen in the British Museum from the coast of Kaffraria, received from Mr. Weale and identified by Dr. Gunther as *A. siculus*.

There are 52 rays in the dorsal, the pectorals are rather long, being a little longer than lower jaw and over 46 per cent. of length of head, and the mandible is slightly less than the length of the body. It appears to agree with *A. siculus*, and may be regarded as such provisionally.

Fam. PLEURONECTIDAE

Solea cleverleyi, n.sp.

(Plate XLIV.)

D. 82. A. 68. L. 1. 120.

Depth of body 3.4, length of head nearly 5 times in length (without caudal). Longitudinal diameter of eye nearly 6 times in length of head, upper slightly in advance of lower, inter-orbital space less than half diameter of eye. Snout truncate, slightly in advance of lower jaw. Mouth extends to below centre of lower eye. Lips not fringed, though there are numerous short tentacles on the blind side of head. Two nostrils close together in front of the lower eye, the anterior tubular. Margins of opercula slightly fringed.

Dorsal commences over anterior third of upper eye and extends to root of caudal fin. Dorsal and anal rays unbranched. The right pectoral, which is covered with scales to nearly one-half of its length, 1.8 in head; left pectoral slightly less than right.

Scales ctenoid on both sides.

The lateral line contains 120 pierced scales.

Colour (in spirit) : Grey on right side, distal half of pectoral almost black; left side, including pectoral, colourless.

Locality : Sent by Mr. Cleverley, Resident Magistrate at Walfish Bay, along with several other specimens of fish, including a *Synaptura microlepis*. The species is named after its discoverer.

Readily distinguished from all other South African species of *Solea* by narrow body and shape of snout.

Synaptura regani, n.sp.

(Plate XLV.)

Depth of body $2\frac{1}{2}$ – $2\frac{3}{4}$ times in the total length, length of head $5\frac{1}{2}$ times. Eyes contiguous, the upper in advance of the lower, their diameter $4\frac{1}{2}$ –5 times in the length of the head. Mouth extending to below anterior part of eye; nasal tube simple, opercular membrane fringed. D. 68–70; A. 56–59; C. 17; the posterior of dorsal and anal connected to the basal half of

the caudal, which is quite distinct and rounded. The width of the base of the caudal fin equal to half the length of the head. Right pectoral about equal in length to diameter of eye; left pectoral half as long. Sc. 82-88 $\frac{25-27}{31-34}$, ciliated, extending on to each ray of dorsal and anal in a double series, which become a single series in the outer half of the fin. On the ocular side, greyish, with 13 pairs of dark brown cross bands, extending to the margins of the dorsal and anal fins; the anterior band of the first pair on the snout, the posterior passing through the front of the eyes; the anterior band of the first pair passing through the base of the pectoral; the last band on the base of the caudal fin. Caudal blackish in its posterior half, with oblong white spots.

Total length, 140 mm.

Three specimens, procured $2\frac{1}{2}$ miles from the mouth of the Umhlanga River; depth, 22-26 fathoms; bottom, fine sand; in coloration very similar to *S. ommatura*, Richards, from the seas of China and Japan, a species which has more numerous fin-rays and much smaller scales.

The species is named after Mr. Regan, B.A., who has described allied forms and has kindly given the benefit of his judgment on the validity of this new species.

Synaptura cornuta, juv.?

A small flat fish closely resembling *S. cornuta* was procured by shrimp trawl off Amatikulu Conical Hill (N.W., $7\frac{1}{2}$ miles), at a depth of 26 fathoms; Reference No. 11,636. It resembles so closely this species that it is provisionally designated as above.

Platophrys grandisquama, Schleg.

A few small flat fish were found in the trawl off the East Coast (Amatikulu River Mouth, bearing N. W. by W. $\frac{3}{4}$ W., distant 12 miles). Depth, 26-27 fathoms, bottom mud. They agree closely with the *Rhombus grandisquama* of Schlegel (Faun. Jap. Poiss p. 183, pl. 92, fig. 3 & 4) and recorded from Chinese and Japanese Seas and the N. W. Coast of America. They were of a dark brown colour with a few darker patches at the bases of the dorsal and anal fin and two at the base of the caudal.

The largest was 70 and the smallest 50 mm. (including caudal). Ref. No. 11731.

Cynoglossus acaudatus, n.sp.

(Plate XLVI.)

D. 102. A. 85. V. (left) 4. L. 1. 65-63.

Depth of body 3, head a little less than 5 times in length of body, height of head greater than its length. Diameter of eye 7 times in head, upper slightly in advance of lower. They are contiguous, there being no interorbital space. The posterior margin of the lower slightly in front of the middle of the length of the head. Snout hooked; a tubular nostril in front of lower eye.

The dorsal begins about half way between the end of the snout and the vertical from anterior margin of upper eye. In the specimens procured the caudal rays were absent, and the space in which they would normally appear was occupied by a transparent membrane connecting the projecting rays of the dorsal and anal.

Scales: ctenoid on both sides. Two lateral lines on the left side separated by 10 rows of scales. The upper ends abruptly near the end of the second third of the length of the body. No lateral line could be detected on the blind side.

Colour: Uniform brown. Examined with a lens, each scale is found to have a thin central horizontal line of dark colour, and many spots of a similar colour along the free margin.

Near *C. interruptus* (Yokohama).

Locality:

Reference No.	Locality.	Procured.		Depth, fathoms
		By.	No.	
11,769	Amatikulu River Mouth, N.W. by by W. $\frac{3}{4}$ W., 12 miles.	Shrimp trawl.	9	26-27
17,765	Cape Point, E. by N. $\frac{3}{4}$ N., 34 miles	„	2	480-600
11,511 B.	From mouth of large fish. Durban			

B. *Cleft of mouth narrow, dentition most developed on the blind or uncoloured side.*

- a. Eyes on the right side, caudal free Solea
1. Interorbital space less than $\frac{1}{2}$ eye (9) .. *cleverleyi*.
 2. Interorbital space equal to $\frac{1}{2}$ eye, Ll. 113-115 .. (10) .. *capensis*.
 3. Interorbital space equal to $\frac{1}{2}$ eye, Ll. 94 (11) .. *turbynei*.
 4. Interorbital space nearly equal to eye (12) .. *bleekeri*.
 5. Interorbital space more than eye (13) .. *fulvo-marginata*.
- b. Eyes on right side, caudal free, pectorals rudimentary .. (14) *Achirus capensis*.
- c. Eyes on right side, caudal joined to dorsal and anal Synaptura
1. Right pectoral longer than head (15) .. *pectoralis*.
 2. Right pectoral $\frac{1}{2}$ to $\frac{2}{3}$ head (16) .. *microlepis*.
 3. Right pectoral not $\frac{1}{2}$ head, 13 pairs transverse bands (17) .. *regani*.
 4. Right pectoral not $\frac{1}{2}$ head, about 13 transverse bands (18) .. *cornuta*.
 5. Right pectoral not $\frac{1}{2}$ head, fins edged with white .. (19) .. *marginata*.
 6. Right pectoral not $\frac{1}{2}$ head, fins edged with black .. (20) .. *melanoptera*.
 7. Right pectoral not $\frac{1}{2}$ head, spotted (21) .. *punctatissima*.
 8. Right pectoral not $\frac{1}{2}$ head, scales with filaments .. (22) .. *ciliata*.
- d. Eyes on left side, no pectorals, more than one lateral line, lips not fringed Cynoglossus
1. Three lateral lines on coloured side (23) .. *capensis*.
 2. Two lateral lines on each side (24) .. *attenuatus*.
 - No lateral lines on right side:—
 3. Height of body 3 times in length .. (25) .. *acaudatus*.
 4. Height of body 4-4 $\frac{1}{2}$ times in length .. (26) .. *brachycephalus*.
- e. Eyes on left side, no pectorals, more than one lateral line, lips fringed (27) *Plagusia marmorata* var. *africana*.
- f. Eyes on left side, no pectorals, no lateral line (28) *Aphoristia variegata*.

Fam. SCOPELIDAE.

Chlorophthalmus gracilis, Gthr.

Specimens of this fish were obtained :—

Refer- ence No.	Locality.	Procured.		Depth, fathoms
		By.	No.	
16,745	Cape Point, N.E. by E. $\frac{1}{4}$ E., 38 miles.	Shrimp trawl.	2	755
16,705	Cape Point, N.E. by E. $\frac{1}{4}$ E., 38 $\frac{1}{2}$ miles.	„	1	„

Those obtained by the *Challenger* were off the eastern coast of New Zealand (1,100 fathoms), middle of South Atlantic (1,375 fathoms), and off Juan Fernandez (1,425 fathoms).

Scopelus coccoi, C.

A large number of this fish was taken (18th August, 1903) by townet, as follows :—

Refer- ence No.	Locality.	Procured.		Depth, fathoms
		By.	No.	
17,287A.	Cape Point, E. by N., 45 miles ..	Townet.	150	Surface
17,354	Cape Point, E. $\frac{1}{4}$ N., 43 miles ..	„	100	„

When placed in a jar of water they were very lively, but did not exhibit the luminosity which might be expected from the large number of "luminous" organs which they possess; the only trace of light given out when examined carefully in the dark was an occasional flash of no great intensity when the fish were disturbed by inserting the hand in the jar.

Males and females were present in about equal proportions in the first lot (numbering 150) procured. They were readily distinguished externally by the deeper body of the females and by the fact that the luminous scales were invariably above the caudal part of the body in the males and below it in the

females. This was confirmed by dissecting a large number of specimens, when it was seen that the ovaries were fairly well developed, and it was probably the spawning time.

Ipnops Murrayi, Günth.

One specimen of this interesting fish was procured by shrimp trawl off Cape Point (N.E. by E. $\frac{1}{2}$ E., 40 miles), from a depth of 800-900 fathoms; Reference No. 16,897. It differs from the description of the type in having anal slightly further forward, the pectorals somewhat longer (extending to middle of ventrals). There is also a small patch of teeth on each of the palatine bones.

Total length, $5\frac{1}{2}$ inches.

The *Challenger* specimens were obtained off the coast of Brazil (1,600 fathoms), near Tristran da Cunha (1,900 fathoms) and north of Celebes (2,150 fathoms).

Bathypterois filiferus, n.sp.

(Plate XLVIII)

Depth of body nearly 6 times in length (223 mm.) without caudal, head $4\frac{1}{2}$ times. Interorbital space 2.3 in length of head, wider than length of snout which is 2.6 times.

Teeth in jaws and vomer.

Anus about midway between pectoral and anal, and has a small papilla.

The upper pectoral ray is very long (405 mm.), nearly twice the length of the body, reaching far beyond the tip of the caudal. It is not bifid, but the second ray is closely applied to it so as to make them appear as one. They separate at a point opposite the adipose dorsal fin. The free portion of the second is about half the length of the head and is bifid. The third ray is small, being about $4\frac{1}{2}$ in the depth of the body; the fourth ray is half the size of the third, and is separated from the other rays of the pectoral by a space about equal to its length. Of the 12 remaining rays, the longest reaches to the posterior end of the base of the caudal fin.

The two external rays of the ventral are short and bound together for about $\frac{2}{3}$ of their length. They are dilated at their extremities, which reach nearly to the root of the caudal. The dorsal fin commences at the middle of the body, and the anal commences below the end of the dorsal.

The caudal is deeply bifurcate; the two lowest rays are prolonged, and have broadened tips with pads, as in the case of the ventrals.

Scales: Deciduous, cycloid.

Specimens were procured as follows:—

Refer- ence No.	Locality.	Procured.		Depth, fathoms.
		By.	No.	
17,174	Cape Point, E. $\frac{3}{4}$ N., 38 miles ..	Shrimp trawl.	1	630
16,934	Cape Point, N.E. by E. $\frac{1}{4}$ E., 40 miles.	..	1	800-900
17,294	Cape Point, E. $\frac{3}{4}$ N., 41 miles ..	..	1	890
16,659	Cape Point Lighthouse, N.E. $\frac{3}{4}$ E., 36 miles.	..	1	600
17,235	Cape Point, E. $\frac{3}{4}$ N., 40 miles ..	..	1	810
17,119	Cape Point, N. 70° E., 40 miles ..	American trawl	1	800
17,020	Cape Point, N.E. by E. $\frac{1}{4}$ E., 46 miles.	Shrimp trawl.	1	900
17,320	Cape Point, N. 86° E., 43 miles ..	..	1	900-1000
17,019	Cape Point, N.E. by E. $\frac{1}{4}$ E., 46 miles.	..	1	900
16,820	Cape Point, N.E. by E. $\frac{3}{4}$ E., 38 $\frac{1}{2}$ miles.	American trawl	10	750-800

Bathypetrois ater, n.sp.

(Plate XLIX.)

Depth of body 6 times in length without caudal (146 mm.), head nearly $5\frac{1}{2}$ times. Interorbital space $2\frac{1}{2}$ times in head; shorter than snout, which is a little over 3 times. Anus about half way between snout and root of caudal.

The upper pectoral ray (217 mm.) is longer than the body and extends beyond the tip of the caudal fin by about a third of its own length. The second is closely applied to the first for the greater part of its length. No rudimentary rays were found in the axil of them; of the other 8 separated rays the fourth is longest and reaches to beyond the insertion of the anal fin.

The two external rays of the ventral are prolonged beyond the third. They are bound together to about the middle of this projecting part. The second is the longest and reaches to nearly the posterior end of the base of the anal. They are slightly detached at the extremities.

The dorsal commences well in front of the middle of the body, and the anal below the end of the dorsal.

There is a well-developed adipose fin, midway between the dorsal and the caudal.

The caudal is deeply bifurcate, the lower rays are slightly shorter than the upper though the tips of the two lower are slightly swollen and not branched like the other caudal rays.

There is a notch on the lower margin of the tail at the base of the caudal fin.

Scale cycloid, not deciduous, and well marked.

Differ from *B. filiferus* in position of dorsal and much shorter ventrals, being nearest to *B. longifilis* in this respect, but differing from it in radial formula, scales and possession of a notch.

One specimen procured off Cape Point (N.E. by E. $\frac{1}{2}$ E., 43 miles) by shrimp trawl, from a depth of 900 fathoms. Reference No. 16,983.

Fam. STOMIATIDAE.

Neostomias, n.g.

Body elongate, compressed, without scales. Pectorals reduced to a single fine ray. Barbel very long, reaching to the dorsal, and provided with filaments and luminous spots. Vomer toothless. Dorsal about half the length of anal, both situated far back. Nearest *Eustomias*.

Neostomias filiferum, n.sp.

(Plate L.)

Br. 9. D. 22. A. 40. P. 1. V. 7.

Body long, of a uniform height between pectorals and ventrals, viz., $11\frac{1}{8}$ times in total length (230 mm.) without caudal, length of head 8 times, the front profile of the head is straight and makes a somewhat sharp angle with that of the body, thus making the snout somewhat pointed. The lower jaw does not project beyond the upper. There are 4 branchial arches, with a slit behind the fourth. There are no pseudobranchiæ, though certain slight corrugations of the epidermis in this region may be remains of pseudobranchiæ.

There are 8 or 9 fang-like depressible teeth in the upper and lower jaw, but none in the palate. The barbel is very long (207 mm.), being $1\frac{1}{6}$ in the length of the body. In contradistinction to the intense black of the body it is colourless except that, at intervals, black bodies may be seen through the colourless skin. There are, moreover, a series of minute black dots along the ventral side of the barbel for about $\frac{1}{3}$ of its length, where a number of filaments originate.

There are on the dorsal side 2 long filaments (34 mm.), ending in minute bulbs at the tips; between this there is a thick filament, not so long (10 mm.), also ending in a bulb which has, however, a short hair-like prolongation. About the middle of this median filament there are two much finer filaments, also ending in bulbs. A little behind the origin of these, the main barbel, shows a slight swelling, and this was observed to be luminous. Toward the end of the barbel the dark patches show through the colourless skin as a series of beads. The extremity of the barbel is characterised by a clump of bulbous expansions, observed to be luminous, and a number of filaments with bead-like swellings.

Luminous organs. There were none to be observed in the head region except those at the base of each of the branchiostegals. Two rows commence immediately behind the barbel, running backward between the pectorals and ventrals at intervals about equal to $\frac{2}{3}$ the diameter of the eye, about 67 pairs in all. There are two other rows parallel to these, commencing behind the opercular opening and running along the sides of the body outside the pectorals and ventrals till they reach about the 11th ray of the anal, where they join the ventral series. In addition to this there is a sprinkling of very minute spots over the ventral surface of the body, most marked in the neighbourhood of the larger luminous spots.

The dorsal begins far back, the distance between its commencement and the caudal being $\frac{1}{7}$ of the total length; it ends near the caudal, its total length being about the length of the head. The anal is longer, its centre being nearly under the commencement of the dorsal. The pectorals are reduced (apparently) to single filaments, and are about $1\frac{1}{4}$ in the depth of the body. The ventrals have 7 rays and are slightly longer than pectorals. None of the rays are prolonged, but their tips are filamentous.

One specimen, procured off Cape Point (E.N.E., $36\frac{1}{2}$ miles), from a depth of 660 fathoms. Reference No. 17,791.

Fam. HALOSAURIDAE.

Halosaurus niger, n.sp.

(Plate LI.)

Br. 12. D. 12. V. I 8. L. tr. $\frac{1}{5}$.

The length of the head is greater than its distance from the ventrals, is equal to its distance from the dorsal, and is $6\frac{1}{2}$ times in the length of the body (about 2 feet). Snout produced, a little less than post-ocular part of the head, its pre-oral portion being $\frac{1}{4}$ of its length. The eye is contained a little over 5 times in the snout, and nearly $2\frac{1}{2}$ times in the interocular width. The height of the body equals the distance between the centre of the eye and the pectoral fin or nearly 12 times in the total length. The maxillary reaches to the front margin of the eye.

Scales of the lateral line enlarged, provided with photophores. No scales on the region between the base of the skull and the tip of the snout. The dorsal fin has large scales on the basal part of its rays, and these are present also on the anal but apparently not on the pectoral or ventral.

The dorsal is situated slightly behind the ventral, which is about the same distance behind the tip of the pectoral. Ventrals short, about half the length of the pectorals, broad and close together, their bases under the 10th scale of the lateral line.

Colour : Black.

Specimens were procured as follows :—

Refer- ence No.	Locality.	Procured.		Depth, fathoms
		By.	No.	
17,293	Cape Point, E. $\frac{3}{4}$ N., 41 miles ..	Shrimp trawl.	1	890
16,893	Cape Point, N.E. by E. $\frac{1}{4}$ E., 40 miles.	..	1	800-900
16,937	Cape Point, N.E. by E. $\frac{1}{4}$ E., 40 miles.	..	1	800-900

A small specimen, about 12 cm. in length, was procured :—

17,257	Cape Point, E. $\frac{3}{4}$ N., 42 miles ..	Shrimp trawl.	1	930
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This last seems to belong to the same species as the others, but the head is black, the body white, and the snout longer.

Halosaurus affinis, Günth

D. 12. V. 18.

Length of head equals its distance from ventrals, and is 7.3 in total length. Snout produced spatulate nearly equals post ocular part of head, its pre-oral portion being about 2.3 in its length. The eye is contained about 4 times in the snout, and is equal to the interorbital space and about $\frac{1}{2}$ post-ocular portion of head. The maxillary scarcely reaches the eye.

The dorsal is a little behind ventral and consists of 12 rays, the first small, about $\frac{1}{4}$ the length of the second. The rays are unbranched; the succeeding are branched with the exception of the last two. Ventrals $1\frac{1}{2}$ times in pectorals.

Scales of lateral line enlarged, provided with photophores, 15 before the ventrals and 28 in front of anus. There appear to be at least 2 series of scales between the lateral line and the anal fin at its anterior end.

Mr. Regan, who has been kind enough to examine a duplicate of this specimen, is of opinion that it agrees in every way with *H. affinis*, which is probably not, however, distinct from *H. rostratus*.

Refer- ence No.	Locality.	Procured.		Depth, fathoms
		By.	No.	
17,714	Cape Point, E. $\frac{3}{4}$ N., 38 miles . . .	Shrimp trawl.	2	630
17,742	Cape Point, E. by N., 35 miles . . .	„	1	500

Halosaurus sp.

A single specimen of this species was procured off Cape Point (N.E. $\frac{1}{4}$ N., 46 miles) by shrimp trawl, from a depth of 760 fathoms. It is apparently different from the two species described above, the ventrals being well in advance of dorsal, and the end of the maxillary falling under the posterior margin of the eye. Owing to the condition of the specimen, due to damage in trawl net, further description or specific determination might be misleading.